

REMARKS

Claims 2-5 remain pending in the application.

Claim Amendments

By this amendment, claim 1 is cancelled and rewritten as new claim 3. Support for this amendment resides at page 9 of the specification. New claims 4 and 5 are added, support for which resides at least at Example 1. No new matter is added by this amendment.

Applicants' Invention

Applicants' invention is directed to a primer composition comprising (I) a modified copolymer obtainable by addition of a polar group represented by the formula (1) or (2) to at least one (co)polymer selected from (A), (B), (C) and (D); and (II) an organic solvent. In a preferred embodiment, the modified copolymer (I) is obtained by modifying a maleic anhydride-grafted copolymer with diethylene glycol, and the maleic anhydride-grafted copolymer is maleic anhydride-grafted propylene/ethylene copolymer.

In the present invention, the use of diethylene glycol as a modifier leads to the modified copolymer having at one end a terminal -OH group and at the other end a terminal -COOH group. Due to the presence of the terminal -OH group, the adhesion

properties to overcoatings, such as an acrylic resin, urethane resin and the like which are high polarity polymers, can be enhanced.

Applicants have found that diethylene glycol may be used with advantage, since when a higher molecular weight modifier such as triethylene glycol is used, the ring-opening reaction proceeds with difficulty, and many unreacted -OH groups are accordingly present in the modified product. The water resistance of the resultant primer composition is accordingly decreased due to an increase in water absorption properties, resulting in poor physical properties such as peeling off strength and swelling of the coating film. The claimed invention is neither disclosed nor suggested by the prior art.

Rejection under 35 USC 102(b)/103(a)

Claims 1 and 2 stand rejected under 35 USC 102(b)/103(a) as being unpatentable over JP 3-052983 or JP 5-279622. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

JP '983 teaches a modified polyolefin having an improved adhesion strength where maleic anhydride and the use of an alcohol having at least five carbon atoms having one or more hydroxyl groups.

By contrast, as recited in applicants' new independent claim 3, diethylene glycol is used as the polar group represented by the formula (1) or (2).

In the Examples of JP '983, octyl alcohol, a styrene oligomer having an end hydroxyl group, and the like, all of which include mono-functional OH groups, are taught - these differ from the diols (diethylene glycol) used in the present invention.

It is thus clear that the modified polyolefins of JP '983 differ from those of the claimed invention, and are neither disclosed nor suggested by the reference.

JP '622 teaches a coating composition containing (A) a graft modified resin and (B) an organic compound having a functional group having a Mn of 150-150,000 which can react with an α , β -unsaturated dicarboxylic acid or its anhydride. Examples of (B) include hydroxyl group-containing compounds such as polyolefin polyols, polyester polyols, polyether polyols, polylactone polyols and polyurethane polyols (column 6, paragraph [0012] of JP '622). Example 1 teaches polyurethane diol (c-1) (POLYTER, reaction product of 1,6 hexane diol/polytetramethylene glycol/isophorone diisocyanate). However, JP '622 fails to teach or suggest the use of diethylene glycol as claimed.

In contrast, applicants' claims recite the use of diethylene glycol as the polar group represented by formulas (1) or (2), and

the Mn of $-(OC_2H_4)_2-OH$ is 106, well below the disclosed range of the reference.

Thus, JP '622 neither discloses nor suggests the copolymer (I) of the claimed composition.

In view of the above, the rejection is without basis and should be withdrawn.

Rejection under 35 USC 103(a)

Claims 1 and 2 stand rejected under 35 USC 103(a) as being unpatentable over Yamamoto U.S. Patent No. 4,146,590 or Xiao et al U.S. Patent No. 6,211,290 in view of JP 3-052983 or JP 5-279622. This rejection respectfully is traversed to the extent deemed to apply to the claims as amended.

Yamamoto '590 teaches a modified polyolefin and teaches the use of dicarboxylic anhydride and ethylene glycol in the examples.

However, Yamamoto is completely silent with respect to a composition where the modified polyolefin is dissolved in an organic solvent as claimed.

Xiao '290 teaches a modified polyolefin having high pendant polar chain of at least one ester group and at least one hydroxyl group.

Xiao teaches at column 3, lines 63-66 that the pendant polar chain structure has a number average molecular weight (including

the ester moiety) of at least about 200 daltons, preferably at least about 250 daltons, more preferably at least about 500 daltons.

In contrast, as recited in applicants' claims, diethylene glycol is used as the polar group represented by the formula (1) or (2), with the Mn of $-(OC_2H_4)_2-OH$ being 106.

Thus, Xiao fails to disclose or suggest the recited copolymer employed in applicants' composition.

Further, Xiao fails to disclose or suggest that the modified polyolefin may be dissolved in an organic solvent to form the claimed composition.

Given the deficiencies of the two references, the combined teachings of same cannot result in the claimed invention.

The rejection is thus without basis and should be withdrawn.

The application is believed to be in condition for allowance and an early indication of same is earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact James W. Hellwege (Reg. No. 28,808) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Appl. No. 10/069,550

A check in the amount of \$420.00 is attached as payment for the two-month extension of time.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By Raymond C. Stewart, #21,066
Raymond C. Stewart, #21,066

RCS/JWH/jmb
1155-0244P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000